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SECURITY INFORMATION

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INFORMATION REPORT

REPORT

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COUNTRY USSR (Kalinin Oblast)

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SUBJECT Development of Pana Fuel at Podberezhie

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SUPPLEMENT TO REPORT NO.

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1. In Podberezhie (56-45N, 37-09E) Dr. Dunken was developing a new fuel, called Pana (petroleum-sodium). In the fall of 1950 the new fuel installation was still in the process of development. It was housed, because of the high danger of explosion, in three rooms. Each room was equipped with the following items:
 - a. Two petroleum tanks and three electric pumps
 - b. Control panel, hydraulic tank, and reservoir
 - c. Injector, mixing and cooling tanks, and sodium tank
2. The two petroleum tanks were two 200-liter ordinary iron vats, which were erected about 3.5 m over the ground. The petroleum tank (No. 1 on attached sketch No. 1) was supplied with an electric temperature control which kept the petroleum at a temperature of about 80-90 ° Cent. The second petroleum tank was without a temperature control and had a normal temperature of about 15-20 ° Cent.
3. The three pumps were driven by one two-hp motor each.
4. The hydraulic tank was directly joined to the control panel and was filled with standard Russian hydraulic oil.
5. The injector consisted of a cylinder with a jet pipe and a nozzle.
6. In the sodium tank there was only fine sifted sodium.
7. The flow chart for the process was as follows: (See Attachment No. 1)
 - a. The installation was set in motion by a main switch (No. 7). From the tanks (Nos. 1, 2, and 12) the petroleum and hydraulic oil flowed over the pumps of the regulating valve (8) at the control panel. When the valves were closed, the petroleum and hydraulic oil ran back again

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through the return pipe into the tanks.

- b. When the valves were opened, the petroleum heated to 80-90 ° Cent in tank No. 1 flowed, with a pressure of 2-3 atmospheres, into the cylinder of the injector (13) and flowed through the nozzle of the jet pipe.
- c. At the same time, a piston in the sodium tank pushed the sodium through the jet pipe (14) and the nozzle, with a diameter of 1.5-2 mm, and dispersed it into the warm petroleum.
- d. This petroleum-sodium mixture flowed through a pipe into the mixing and cooling tanks (15). The petroleum at standard temperature, which was in the second tank, flowed into the mixing and cooling tanks where it was blended with the warm petroleum-sodium mixture.
- e. The completed Pena then flowed from the mixing and cooling tanks into the reservoir, where it appeared as a gray-white, gelatinous mass.
- 8. The development of Pena petroleum was kept strictly secret. The experiment was supervised only by an engineer from the Siebel Works and a petroleum specialist named Janke (fnu) from the BMW Works.
- 9. During the experiment, the temperature of the petroleum in the 80-90 ° Cent. tank was finally set at a specific high temperature, and the pressure of the whole installation was kept at 2-3 atm.¹
- 10. The standard temperature of the petroleum of the second tank was treated with particularly strict secrecy. [] 50X1-HUM
there was a catalyst in the second tank.
- 11. There were special difficulties in keeping the nozzle operative since it became easily plugged up, and therefore the mixture was no longer properly proportioned. In the fall of 1950, the proper proportions of the mixture still had not been found..

Attachments

- 1. Diagram of installation producing Pena.
- 2. Layout of factory at Podberezhe.

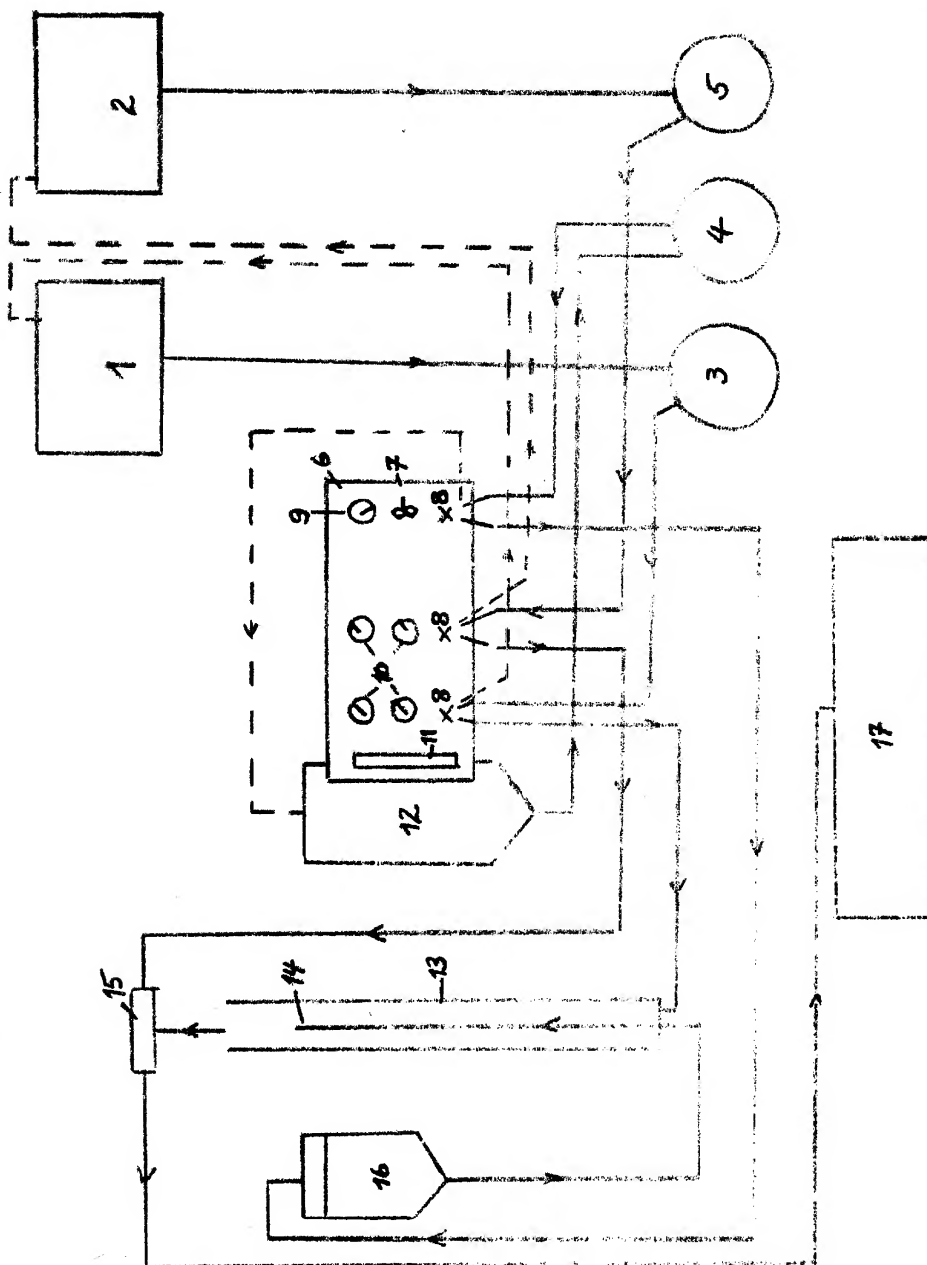
- 1. [] Comment: Specific temperature not given.

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Attachment 1

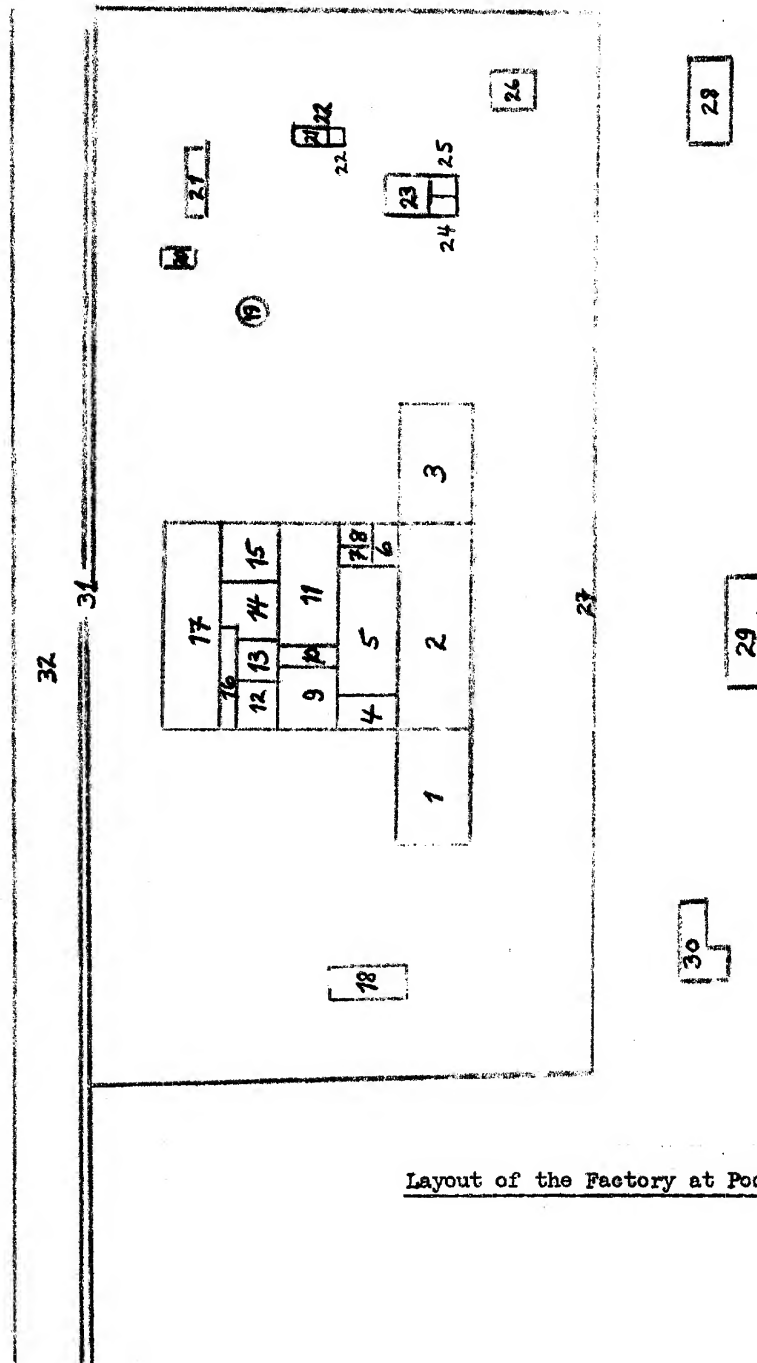
Diagram of Installation Producing Pena

- | | | |
|-------------------|--|----------------------------|
| 1. Petroleum tank | 7. Main switch | 12. Hydraulic tank |
| 2. Petroleum tank | 8. Regulating valve | 13. Injector |
| 3. Electric pump | 9. Pressure indicator | 14. Jet pipe with nozzle |
| 4. Electric pump | 10. Temperature indicators and pressure indicators | 15. Mixing & cooling tanks |
| 5. Electric pump | 11. Viewing glass for the hydraulic tank | 16. Sodium tank |
| 6. Control panel | | 17. Reservoir |
| | | -- Return pipe |

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Attachment 2



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Attachment 2

Key to Attachment 2

1. OKB I (Osoboye Konstruktorskoye Byuro - Special Design Office)
2. First floor: chemical laboratory, first floor management, OKB I, OKB II.
Second floor: Soviet administration.
3. OKB II
4. OKB I design room
5. Tool room
6. Office of Dr. Wede
7. Driving gear construction 50X1-HUM
8. Soviet control
9. Saddlery, punching, and tanning
10. Tool storage
11. Tin mouldery
12. Tensile testing
13. Cell construction
14. Final assembly
15. Cell construction
16. Pattern makers
17. Control room
18. Storehouse
19. Underground explosive dump
20. Storage tank 50X1-HUM
21. Power experiment
22. Pena experiment
23. Forge
24. Physician
25. Dr. Wede (sic)
26. Heating plant
27. Entrance
28. Fire brigade
29. Canteen
30. Garage
31. Quay wall
32. Moscow-Volga Canal

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